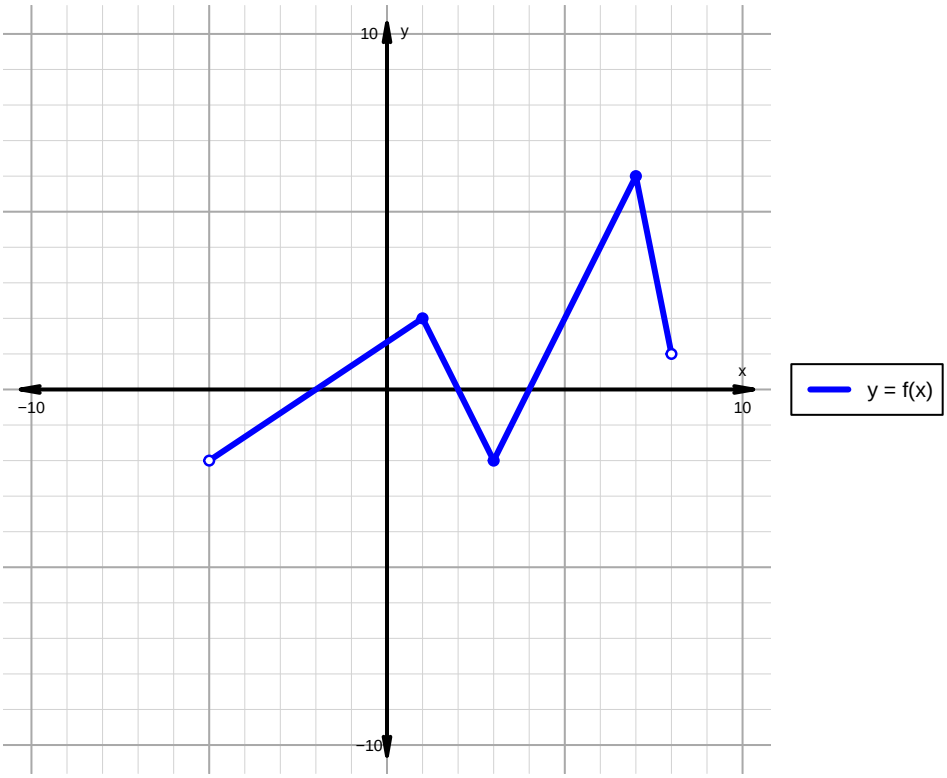
Name: Date:

## Intervals, Transformations, and Slope Solution (version 114)

1. The function $f$ is graphed below.




Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate $x$ values; this is standard.

| Feature | Where |
|---|---|
| Positive | $(-2, 2) \cup (4, 8)$ |
| Negative | $(-5, -2) \cup (2, 4)$ |
| Increasing | $(-5, 1) \cup (3, 7)$ |
| Decreasing | $(1, 3) \cup (7, 8)$ |
| Domain | $(-5, 8)$ |
| Range | $(-2, 6)$ |

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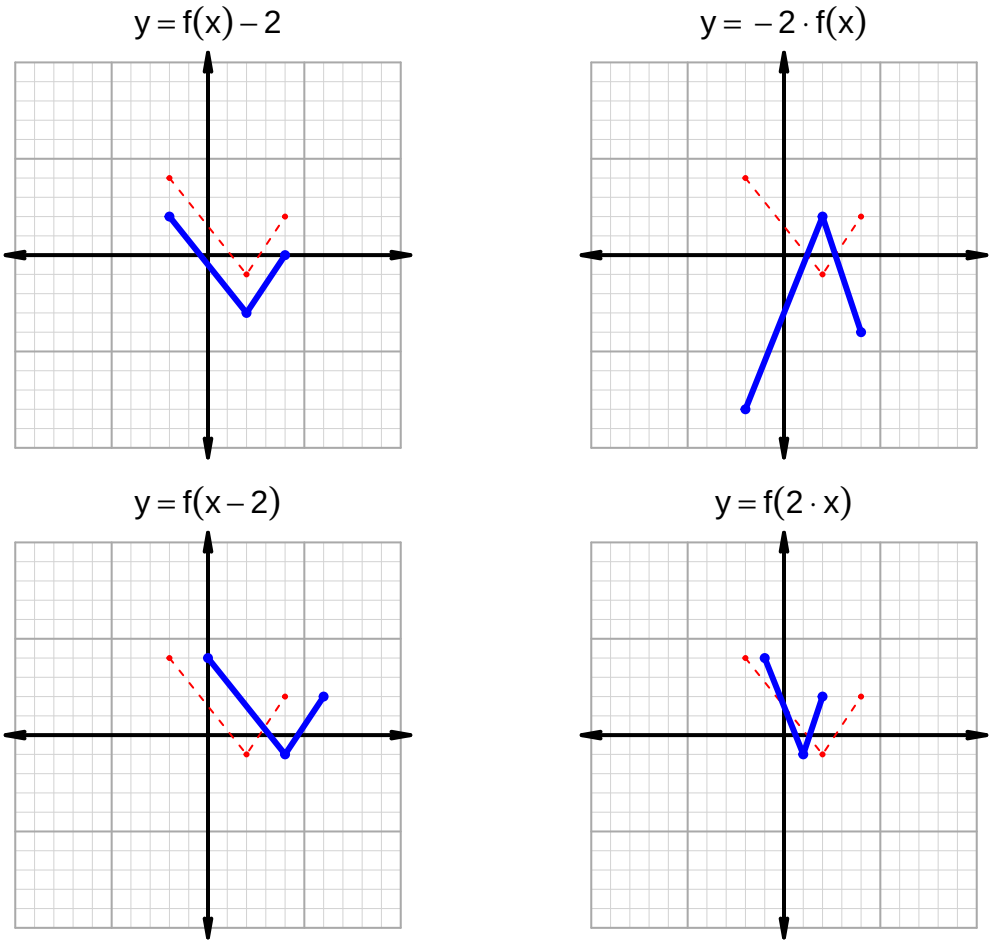
2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.




3. Let function $g$ be defined by the table below. Use the formula $\frac{g(x_2)-g(x_1)}{x_2-x_1}$ to find the average rate of change between $x_1 = 14$ and $x_2 = 86$. Express your answer as a reduced fraction.

| $x$ | $g(x)$ |
|---|---|
| 14 | 63 |
| 63 | 86 |
| 72 | 14 |
| 86 | 72 |

$\frac{f(86)-f(14)}{86-14} = \frac{72-63}{86-14} = \frac{9}{72}$

The greatest common factor of 9 and 72 is 9. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{1}{8}$$